

**The Big Bad Wolf, Theism and the Foundations of Intelligent Design:  
A Review of Richard Dawkins', *The God Delusion*, (Bantam, 2006)**

**by Peter S. Williams (MA, MPhil)**

The man described as 'Darwin's Rotweiler' (by supporter Charles Simonyi) has evolved to metaphorically resemble the big bad wolf of nursery rhyme fame, and he is on a mission to liberate the pigs (the analogy is mine, not his) from what he sees as their prisons of straw. Indeed, Zoologist Richard Dawkins is so intent on blowing down straw houses that he not only acknowledges the existence of firm foundations that might be used for permanent constructions, but he fails to notice that some of the pigs are building on just such a wolf-endorsed foundation with bricks and mortar more than adequate to the task of withstanding all his huffing and puffing. Dawkins, who is Oxford University's Professor for the Public Understanding of Science, has been described as 'materialistic, reductionist and overtly anti-religious.' Nevertheless, *The God Delusion* – which is descended by design from Dawkins' two-part television series *The Root of all Evil?* – is Dawkins' first book to make a direct attack upon religion (especially theism, and most especially Christianity): 'If this book works as I intend, religious readers who open it will be atheists when they put it down.'

Dawkins thinks that if his book fails to have the desired effect, this can only be because 'dyed-in-the-wool faith-heads are immune to argument, their resistance built up over years of childhood indoctrination using methods [such as issuing] a dire warning to avoid even opening a book like this, which is surely a work of Satan.' On the other hand, anyone who is 'open-minded', whose 'childhood indoctrination was not too insidious... or whose native intelligence is strong enough to overcome it', will 'need only a little encouragement to break free of the vice of religion altogether.'

*The God Delusion* is certainly the work of a passionate and rhetorically savvy writer capable of making good points against authoritarian religious fundamentalism. For example, I wholeheartedly agree with Dawkins about the hazards of illiberally encouraging an unbiblical *blind* faith:

Teaching children that unquestioned faith is a virtue primes them – given certain other ingredients that are not hard to come by – to grow up into potentially lethal weapons for the future jihads or crusades... If children were taught to question and think through their beliefs, instead of being taught the superior virtue of faith without question, it is a good bet that there would be no suicide bombers.

Likewise, I stand shoulder to shoulder with Dawkins in being appalled at the un-Christ-like attitude displayed by many people who profess to own the name of Christ. It is shameful that Dawkins can quote American writer Ann Coulter saying: 'I defy any of my co-religionists to tell me they do not laugh at the idea of Dawkins burning in hell.' I for one do *not* laugh at the idea of Dawkins burning in hell (not that I think hell involves literal burning, and not that I would presume to forecast Dawkins' eternal destination). Coulter should attend to the following verses of scripture: James 3:9-10, 1 Peter 3:15-16 and Luke 5:27-36. Dawkins ends his first chapter with the following pledge: 'I shall not go out of my way to offend, but nor shall I don kid gloves to handle religion more gently

that I would handle anything else.’ Critics should extend Dawkins the same courtesy.

However, it would be an instance of kid glove donning not to note that Dawkins simply doesn’t recognize when he is out of his philosophical depth. Antony Latham is correct when he laments that ‘Dawkins clearly has an inflated idea of his competence in metaphysics.’ And as Oxford theologian Alister McGrath comments:

Dawkins’ engagement with theology is superficial and inaccurate, often amounting to little more than cheap point scoring... His tendency to misrepresent the views of his opponents is the least attractive aspect of his writings. It simply reinforces the perception that he inhabits a hermetically sealed conceptual world, impervious to a genuine engagement with religion.

Terry Eagleton passes similar comment in the *London Review of Books*:

Imagine someone holding forth on biology whose only knowledge of the subject is the *Book of British Birds*, and you have a rough idea of what it feels like to read Richard Dawkins on theology. Card-carrying rationalists like Dawkins, who is the nearest thing to a professional atheist we have had since Bertrand Russell, are in one sense the least well-equipped to understand what they castigate, since they don’t believe there is anything there to be understood, or at least anything worth understanding. This is why they invariably come up with vulgar caricatures of religious faith that would make a first-year theology student wince. The more they detest religion, the more ill-informed their criticisms of it tend to be. If they were asked to pass judgment on phenomenology or the geopolitics of South Asia, they would no doubt bone up on the question as assiduously as they could. When it comes to theology, however, any shoddy old travesty will pass muster...critics of the richest, most enduring form of popular culture in human history have a moral obligation to confront that case at its most persuasive, rather than grabbing themselves a victory on the cheap by savaging it as so much garbage and gobbledygook.

*The God Delusion* is liberally sprinkled with imaginary opponents (‘Here is the message that an imaginary “intelligent design theorist” might broadcast...’, ‘the following statement from an imaginary apologist...’, ‘My imaginary religious apologist...’, ‘Let’s invent an imaginary quotation from a moral philosopher...’), as if Dawkins can’t be bothered to engaging with the real opposition. Aside from an unfortunate determination to tackle straw men, the most noteworthy and controversial aspect of Dawkins’ apologetic is his *support* for the theoretical underpinnings of Intelligent Design Theory. Most significantly, Dawkins makes it clear the *intelligent design is a scientific theory*.

### **No More NOMA**

‘I do have one thing in common with the creationists. Like me... they will have no truck with NOMA and its separate magisteria.’ – Richard Dawkins

Dawkins asserts in the Preface of *The God Delusion* that: “‘the God Hypothesis’ is a scientific hypothesis about the universe, which should be analysed as sceptically as any

other' (including, presumably, Darwinian macro-evolution). He later affirms, in broader terms, that:

The presence or absence of a creative super-intelligence is unequivocally a scientific question, even if it is not in practice – or not yet – a decided one... The methods we should use to settle the matter, in the unlikely event that relevant evidence ever became available, would be purely and entirely scientific methods.

Dawkins and intelligent design theorists are in full agreement upon this latter point.

Dawkins defines science as simply: 'the honest and systematic endeavour to find out the truth about the real world.' As design theorist Jay W. Richards states: 'Methodological naturalism... contradicts the true spirit of science, which is to seek the truth about the natural world, no holds barred.' Dawkins appears to use 'science' as a term of endearment extending to any critical investigation of the 'real world' to which empirical data has relevance, although as a metaphysical naturalist he assumes that the 'real world' is describable in exclusively naturalistic terms. While ID theorists are careful not to allow *a priori* assumptions to pre-determine the conclusions science reaches, and have followed the lead of David Hume in distinguishing between conclusions that scientific arguments can and cannot support without philosophical extension, Dawkins is not so careful. Bearing these qualifications in mind, the design theorist (especially the theistic design theorist) can welcome Dawkins' affirmation that: 'the existence of God is a scientific hypothesis like any other... God's existence or non-existence is a scientific fact about the universe, discoverable in principle if not in practice.'

In claiming that ID is a scientific theory Dawkins flatly contradicts many critics - including physicist Lawrence Krauss, microbiologist Carl Woese and philosopher Robert Pennock - who argue that intelligent design theory is not a scientific hypothesis. In his *Kitmiller v. Dover* opinion, Judge John E. Jones III wrote of 'the inescapable conclusion that ID is an interesting theological argument, but that it is not science.' Dawkins disagrees. According to the American Civil Liberties Union (ACLU): 'Intelligent design... *falls outside the realm of science.*' Dawkins disagrees. Austin Cline argues that: 'Intelligent Design isn't a part of science.' Dawkins disagrees.

A basic assumption of ID is that an intelligent agent is capable of acting in such a way as to impress empirically detectable evidence of design upon physical reality (this assumption underlies the day-to-day work of many scientists, including archaeologists, cryptographers, forensic scientists, paranormal researchers, conductors of double-blind prayer studies and those engaged in the search for extra-terrestrial life). A world in which God both exists *and acts in such an empirically detectable way* is therefore empirically distinguishable from a world in which he does not. Dawkins has no truck with: 'the erroneous notion that the existence or non-existence of God is an untouchable question, forever beyond the reach of science... Either he exists or he doesn't. It is a scientific question; one day we may know the answer, and meanwhile we can say something pretty strong about the probability.'

Dawkins rejects Stephen Jay Gould's theory of 'non-overlapping magisteria' (or NOMA) that:

The net, or magisterium of science covers the empirical realm... The magisterium of religion extends over questions of ultimate meaning and moral value. These two magisteria do not overlap... To cite the old clichés, science gets the age of

rocks, and religion the rock of ages; science studies how the heavens go, religion how to go to heaven.

Dawkins considers this an act of ‘bending over backwards to positively supine lengths’ to avoid any possibility of conflict (or dialogue) between science and religion. In order to stand any chance of mounting an attack on religion with the sword of science, Dawkins first has to cut through the shield of NOMA. The dialogue negating suggestion that science is about ‘how’ while religion is about ‘why’ actually contains a grain of truth (religion does deal with questions of meaning with which science does not and cannot deal), but is too simplistic. As Dawkins says of NOMA: ‘This sounds terrific – right up until you give it a moment’s thought.’ He dramatizes the point by imagining:

that forensic archaeologists unearthed DNA evidence to show that Jesus really did lack a biological father. Can you imagine religious apologists shrugging their shoulders and saying anything remotely like the following? ‘Who cares? Scientific evidence is completely irrelevant to theological questions. Wrong magisterium! We’re concerned only with ultimate questions and with moral values. Neither DNA nor any other scientific evidence could ever have any bearing on the matter, one way or the other.’ The very idea is a joke.

Real world religions make real world claims that therefore intersect with the fields of inquiry handled by science. As philosopher of science Stephen C. Meyer argues:

it’s inherent in the Christian faith to make claims about the real world. According to the Bible, God has revealed himself in time and space, and so Christianity – for good or ill – is going to intersect some of the factual claims of history and science. There’s either going to be conflict or agreement. To make NOMA work, its advocates have to water down science or faith, or both. Certainly Gould did – he said religion was just a matter of ethical teaching, comfort, or metaphysical beliefs about meaning. But Christianity certainly claims to be more than that.

For example, Dawkins observes that:

the alleged power of intercessory prayer is at least in principle within the reach of science. A double-blind experiment can be done and was done. It could have yielded a positive result. And if it had, can you imagine a single religious apologist who would have dismissed it on the grounds that scientific research has no bearing on religious matters? Of course not.

Obviously, we *can* imagine a religious apologist who holds such a view, but the basic point is well taken. Equally obviously, the failure of a double blind study on prayer for healing to produce a positive result does not count against either the God hypothesis or the hypothesis that God sometimes answers prayer positively (it counts against the hypothesis that God *always* answers prayer positively, but few if any religious believers accepts such a hypothesis). Double blind or not, one can’t constrain the variable of God’s willingness to ‘play ball’. Absence of evidence for intelligent design is not automatically evidence of absence of an intelligent designer (that depends upon whether or not one has a good reason to expect to find evidence if the ultimate object of one’s investigation were

real). Magicians can randomly shuffle their cards as well as stacking the deck. Failure to detect design in the order of a pack of cards used by a magician does not disprove the existence of either stacked decks or of magicians. Noticing that a pack is ordered to perform a certain trick does, however, tip us off to the existence of a magician. Likewise, a double blind study that did produce a positive result would at the very least present the naturalist with something to explain away. Dawkins references a Templeton Foundation funded study of prayer for healing that failed to yield a positive result, and comments:

Needless to say, the negative results of the experiment will not shake the faithful. [It would be more accurate to state that the study had a 'null' result rather than a 'negative' result.] Bob Barth, the spiritual director of the Missouri prayer ministry which supplied some of the experimental prayers, said: 'A person of faith would say that this study is interesting, but we've been praying a long time and we've seen prayer work, we know it works, and the research on prayer and spirituality is just getting started.' Yeah, right: we know from our faith that prayer works, so if evidence fails to show it we'll just soldier on until finally we get the result we want.

It is unfortunate that Dawkins seeks to portray Barth as claiming to know *from un-evidenced faith* that prayer can lead to real world differences the very sentence after he quotes him claiming to know *from personal experience* that prayer 'works'. It is also unfortunate that Dawkins fails to note that several other scientific studies on prayer *have* reported positive results. A systematic review of the efficacy of distant healing published in 2000 concluded that: 'approximately 57% (13 of 23) of the randomised, placebo-controlled trials of distant healing... showed a positive treatment effect'. For example:

Dr [Randolf] Byrd divided 393 heart patients into two groups. One was prayed for by Christians; the other did not receive prayers from study participants. Patients didn't know which group they belonged to. The members of the group that was prayed for experienced fewer complications, fewer cases of pneumonia, fewer cardiac arrests, less congestive heart failure and needed fewer antibiotics.

Dr Dale Matthews documents how volunteers prayed for selected patients with rheumatoid arthritis: 'To avoid a possible placebo effect from knowing they were being prayed for, the patients were not told which ones were subjects of the test. The recovery rate among those prayed for was measurably higher than among a control group, for which prayers were not offered.' Such results are of course far from being conclusive verification of the efficacy of prayer for healing, but they do show that Dawkins fails to grapple with the full range of available data on this subject. Moreover, it is worth noting that such studies assume that a statistically significant (i.e. sufficiently unlikely) match with specified beneficial health outcomes would be evidence for the efficacy of prayer, and are therefore another example of the scientific utility of specified complexity.

Although Dawkins rightly rejects the overly simplistic NOMA principle, it is harder to attack religion using science than Dawkins thinks, because there is no simple move from 'null' results to 'negative' results, from absence of evidence for design to the absence of a designer. Nevertheless, religious claims can be framed in falsifiable terms, and many religious claims are framed in such terms. For example, the claim that Jesus rose bodily from the grave entails that Christianity could in principle be falsified by

digging up the right body. The claim that Mary was a virgin when she gave birth could be falsified by digging up the right sort of historical documentation (a denial of the story written by Mary herself would do quite nicely). Unfortunately for Dawkins, when it comes to the question of origins, absence of evidence for intelligent design (from biochemistry for example) cannot be considered evidence for the absence of an intelligent designer, any more than the null result of one prayer study can be used to falsify theism. However, just as positive results concerning prayer should at least be of concern to a naturalist like Dawkins, so evidence for intelligent design (from biochemistry for example) should be of concern to him. If naturalism is true, some sort of evolutionary explanation must be true. If theism is true then there exists a supernatural creator who may or may not have arranged one or more aspects of creation after a manner that provides detectable evidence of intelligent design. As Alvin Plantinga writes:

a Christian (naturally) believes that there is such a person as God, and believes that God has created and sustains the world. Starting from this position... we recognize that there are many ways in which God could have created the living things he has in fact created: how, in fact, did he do it? ...Did it all happen just by way of the working of the laws of physics, or was there further divine activity..? That's the question... Starting from the belief in God, we must look at the evidence and consider the probabilities as best we can.

Contrast the intellectual freedom of scientific investigation to follow the evidence under a theistic worldview with the *a priori* constraints imposed upon the interpretation of empirical evidence by a naturalistic worldview, as candidly revealed by geneticist Richard Lewontin: 'It is not that the methods... of science somehow compel us to accept a material explanation of the... world, but, on the contrary, that we are forced by our... adherence to material causes to create... a set of concepts that produce material explanations, no matter how counterintuitive, no matter how mystifying...' The *a priori* constraint of naturalism often results in its adherents engaging in arguments (often under the guise of 'science') that beg the question. As Darwinist Michael Ruse admits: 'I think that philosophically one should be sensitive to what I think history shows, namely, that evolution... involves making certain a priori or metaphysical assumptions, which at some level cannot be proven empirically.' For example, Dawkins asserts that 'Creative intelligences, being evolved, necessarily arrive late in the universe, and therefore cannot be responsible for designing it.' However, even if every known creative intelligence were demonstrably evolved late comers in the universe, this fact would provide no inferential scientific justification for the conclusion that any and all creative intelligences are '*necessarily*' evolved late arrivals in the universe that 'therefore cannot be responsible for designing it'. This conclusion is one that must be *deduced* from the conclusion that naturalism is true.

In 2005 online magazine '*Edge The World Question Centre*' posed the following question to a number of scientific intellectuals: 'What do you believe is true even though you cannot prove it?' Dawkins revealingly answered: 'I believe that all life, all intelligence, all creativity and all 'design' anywhere in the universe, is the direct or indirect product of Darwinian natural selection. It follows that design comes late in the universe, after a period of Darwinian evolution. Design cannot precede evolution and therefore cannot underlie the universe.' Hence, while Dawkins thinks he can prove that evolution accounts for all life, intelligence, creativity and (crucially) all design *on earth*,

he admits he cannot prove that it accounts for *all* life, intelligence, creativity and design *in the universe*. Therefore, whatever we make of evolution as an explanation of life on earth, we need to recognize that only from the *unproven generalisation* that evolution accounts for *all* life, intelligence, creativity and design in the universe, does it follow that ‘Creative intelligences... arrive late in the universe, and therefore cannot be responsible for designing it.’ Indeed, that particular conclusion only follows from the premise that evolution *must* (rather than *does*) account for all life, intelligence, creativity and design in the universe. Such an *a priori* assertion is clearly metaphysical in nature rather than scientific, since it amounts to the assumption that God does not exist. It seems, then, that Dawkins believes that evolution *must* explain any and all ‘design’ in the universe, and that there is no divine designer, *because he believes that God does not exist*. As Phillip E. Johnson argues: ‘Darwinism is the answer to a specific question that grows out of philosophical naturalism... The question is: How must creation have occurred if we assume that God had nothing to do with it?’ Answering this question is not at all the same as answering *this* question: ‘How did creation occur?’ As Thomas Woodward observes:

ID scientists never *prejudge* in detecting design. *They never assume design; design must be positively detected*, by analysing evidence and passing rigorous tests. Darwinism is different. It is profoundly theological in its basic operating rules, in that it lays down an *assured truth* – an axiom that amounts to a religious catechism. It is this catechism then that serves as a starting point. The Darwinian catechism states that when scrutinizing complex living systems, one can rest assured that scientific evidence and logic can never lead one to conclude that there was an intelligent cause behind life... Evolutionary biology, by limiting itself exclusively to material mechanisms, has settled in advance the question of which biological explanations are true, apart from any consideration of the empirical evidence. This is armchair philosophy.

### **Specified Complexity & Little Green Men**

Discussing the scientific search for extra-terrestrial life, Dawkins notes:

It is a non-trivial question, by the way, what kind of signal would convince us of its intelligent origin. A good approach is to turn the question around. What should we intelligently do in order to advertise our presence to extraterrestrial listeners? Rhythmic pulses wouldn’t do it... Metronomic rhythms can be generated by many non-intelligent phenomena... Nothing simply rhythmic, then, would announce our intelligent presence to the waiting universe.

Jocelyn Bell Burnell first discovered the pulsar in 1967 and ‘was moved by the precision of its 1.33-second periodicity to name it, tongue in cheek, the LGM (Little Green Men) signal. She later found a second pulsar, elsewhere in the sky and of a different periodicity, which pretty much disposed of the LGM hypothesis.’ The regular, specified but uncomplicated pattern of a pulsar does not require an explanation in terms of intelligent design. Neither, of course, does the irregular, unspecified complexity of static.

So what sort of signal would do the job? As design theorist William A. Dembski argues, it is one that is both complex and specified. According to Dawkins: ‘Prime numbers are often mentioned as the recipe of choice, since it is difficult to think of a purely physical process that could generate them.’ Dawkins affirms, then, that there is a type of pattern, in principle discoverable by empirical, scientific investigation, for which it is difficult to account in purely physical terms and which would rightly trigger a design inference. In this, he agrees with design theorists. As Dembski writes:

Intelligent design studies the effects of intelligence in the world. Many special sciences already fall under intelligent design, including archaeology, cryptography, forensics, and SETI (the Search for Extraterrestrial Intelligence). Intelligent design is thus already part of science. Moreover, it employs well-defined methods for detecting intelligence. These methods together with their application constitute the theory of intelligent design [this is ID in the broad sense]. The question, therefore, is not whether intelligent design constitutes a genuine scientific theory but whether, as a scientific theory, it properly applies to biology [this is ID in the narrow sense]. Indeed, the only place where intelligent design is controversial is biology (even physicists are now comfortable talking about the design of the universe).

Dawkins also re-affirms his belief that: ‘Whether we ever get to know about them or not, there are very probably alien civilizations that are superhuman, to the point of being god-like in ways that exceed anything a theologian could possibly imagine.’ (Dawkins cannot, therefore, exclude *a priori* the possibility that intelligent design is a true hypothesis when it comes to accounting for life on earth.) Dawkins has a low opinion of theology: ‘The notion that religion is a proper field, in which one might claim *expertise*, is one that should not go unquestioned... there is no evidence to support theological opinions either way... I have yet to see any good reason to suppose that theology (as opposed to biblical history, literature, etc.) is a subject at all.’ Of course, theology *includes* biblical history, literature, etc. What Dawkins seems to mean, is that *systematic* or *philosophical* theology is not a real subject in which one might claim expertise, since there is no relevant empirical evidence to master. Even granting for the sake of argument that proper subjects require empirical evidence, whether or not Dawkins is right about ‘theology’ being a non-subject would seem to depend upon whether or not naturalism is true, a question to which, in a NOMA free world, evidence may certainly be relevant (especially if we reject a self-contradictory scientism by refusing to restrict the meaning of ‘evidence’ to ‘empirical evidence’).

### **ID is a Scientific Theory**

Dawkins applies his rejection of NOMA to the questions at the heart of both ID and Christianity:

The presence or absence of a creative super-intelligence is unequivocally a scientific question, even if it is not in practice – or not yet – a decided one. So also is the truth or falsehood of every one of the miracle stories that religions rely upon to impress multitudes of the faithful. Did Jesus have a human father, or was

his mother a virgin at the time of his birth? Whether or not there is enough surviving evidence to decide it, this is still a strictly scientific question with a definite answer in principle: yes or no. Did Jesus raise Lazarus from the dead? Did he himself come alive again, three days after being crucified? There is an answer to every such question, whether or not we can discover it in practice, and it is a strictly scientific answer. The methods we should use to settle the matter, in the unlikely event that relevant evidence ever became available, would be purely and entirely scientific methods.

Dawkins' critique of Christianity, like his critique of ID, is that the evidence does not support it. He asserts:

Christianity was founded by Paul of Tarsus... The historical evidence that Jesus claimed any sort of divine status is minimal... Ever since the nineteenth century, scholarly theologians have made an overwhelming case that the gospels are not reliable accounts of what happened in the history of the real world. All were written long after the death of Jesus, and also after the epistles of Paul, which mention almost none of the alleged facts of Jesus' life. All were then copied and recopied, through many different 'Chinese Whispers generations'... by fallible scribes who, in any case, had their own religious agendas... The four gospels that made it into the official cannon were chosen, more or less arbitrarily, out of a larger sample of at least a dozen... Nobody knows who the four evangelists were, but they almost certainly never met Jesus personally. Much of what they wrote was in no sense an honest attempt at history... It is even possible to mount a serious, though not widely supported, historical case that Jesus never lived at all... Although Jesus probably existed, reputable bible scholars do not in general regard the New Testament (and obviously not the Old Testament) as a reliable record of what actually happened in history...

Dawkins' attack upon the historical reliability of the bible, which draws upon scholars like agnostic Bart Ehrman (who follows Hume in proposing that miracle claims cannot in principle be supported by evidence), constitutes a 'greatest hits' of the sort of claim I expect to hear from students who have uncritically lapped up philosophically outdated and sceptical treatments of scripture that confirm their prejudices. Plenty of scholars would take issue with Dawkins' opinions concerning the reliability of the bible, on evidential grounds.

There is an apparent contradiction between Dawkins' NOMA-rejecting support for the idea that miracle claims can in principle be settled one way or the other by scientific evidence, and his assertion that 'miracles, by definition, violate the principles of science.' Responding to the latter claim, William Lane Craig writes:

natural laws assume that no other natural or supernatural factors are interfering with the operation of that the laws describes... The law of gravity states what will happen under idealized conditions with no natural or supernatural factors intervening. Catching the apple doesn't overturn the law of gravity or require the formulation of a new law. It's merely the intervention of a person with free will who overrides the natural causes operative in that particular circumstances. And that, essentially, is what God does when he causes a miracle to occur.

In other words, using scientific laws to argue against theism is guilty of begging the question. Dawkins might escape the charge of begging the question, and of contradicting his argument that miracles can in principle be verified by science, if it were not for his assertion that educated Christians today know that miracle claims are, not merely *unsupported* or even *falsified* by scientific evidence, but *rationally absurd*:

The nineteenth century is the last time when it was possible for an educated person to admit to believing in miracles like the virgin birth without embarrassment. When pressed, many educated Christians today are too loyal to deny the virgin birth and the resurrection. But it embarrasses them because their rational minds know it is absurd, so they would much rather not be asked.

In Dawkins' world it is evidently a sound critique to simply *assert* that educated people professing allegiance to a belief are so caught up in the spirit of the age that they are embarrassed when pressed upon the subject because 'their rational minds know it is absurd'. (I wonder how far I can get by *asserting*: 'The twentieth century is the last time when it was possible for an educated person to admit to believing in naturalistic theories of mind, such as that 'thoughts and emotions emerge from exceedingly complex interactions of physical entities within the brain,' without embarrassment. When pressed, many educated naturalists are too loyal to deny such theories. But it embarrasses them because their rational minds know it is absurd, so they would much rather not be asked'?)

Dawkins obviously knows me better than myself since, despite being well educated, I was strangely unaware of knowing that believing in the resurrection embarrassed me before reading Dawkins' assertion to the contrary. Indeed, I am still unaware of knowing any such thing and protest that I am not embarrassed to profess belief in miracles, including the virgin birth and the resurrection. As Alvin Plantinga writes:

Very many well-educated people (including even some theologians) understand science and history in a way that is entirely compatible both with the possibility and with the actuality of miracles. Many physicists and engineers, for example, understand 'electrical light and the wireless' vastly better than Bultmann or his contemporary followers, but nonetheless hold precisely those New Testament beliefs Bultmann thinks incompatible with using electric lights and radios... As a matter of historical fact, there are any number of contemporaries, and contemporary intellectuals very well acquainted with science who don't feel any problem at all in pursuing science and also believing in miracles, angels, Christ's resurrection, the lot.

The crucial point here, at least for present purposes, is the point on which Christians *agree* with Dawkins (even if Dawkins himself is inconsistent upon the matter): When it comes to religious claims about history, *it really does matter what the evidence is*. I take a different view than Dawkins on the historical reliability of scripture, not because I have a religious faith that brooks no argument, but because I think I can better his claims on the shared ground of rational engagement with the data.

When we come to examine pre-history, Dawkins states:

A universe in which we are alone except for other slowly evolved intelligences is a very different universe from one with an original guiding agent whose intelligent design is responsible for its very existence. I accept that it may not be so easy in practice to distinguish one kind of universe from the other. Nevertheless, there is something utterly special about the hypothesis of ultimate design, and equally special about the only known alternative: gradual evolution in the broad sense. They are close to being irreconcilably different. [In which case they are *not* irreconcilably different.] Like nothing else, evolution [*if* it can do everything Dawkins thinks it can do, which many ID theorists question] really does provide an explanation for the existence of entities whose improbability would otherwise, for practical purposes, rule them out [absent intelligent design that is].

While there is an obvious relation between the question of ‘a creative super-intelligence’ and the question of a supernatural creator, they are equally obviously not one and the same question. Evidence for the latter is necessarily evidence for the former, but not vice versa. To move from the former to the latter requires philosophical extension. The theist holds a doctrine of creation that does not demand scientific evidence of intelligent design, but which can welcome such evidence if it exists. The naturalists holds a doctrine of non-creation that precludes any scientific evidence of design unless it is accounted for by reference to some naturalistically acceptable designer (such as Dawkins’ god-like but nevertheless evolved aliens); something it is progressively harder to do the more widespread and the more fundamental the evidence for design is shown to be. According to Dawkins, ‘there is no evidence to favour the God Hypothesis.’ I disagree (Dawkins’ laughable treatment of natural theology appears to be that of someone who cannot be bothered to seriously engage with the subject). However, the crucial point here is the point on which ID theorists (whether or not they believe in God) *agree* with Dawkins: ‘A universe in which we are alone except for other slowly evolved intelligences is a very different universe from one with an original guiding agent whose intelligent design is responsible for its very existence.’ Indeed, such a universe is sufficiently different that the difference might be empirically detectable.

### **Irreducible Complexity**

‘We believe in evolution because the evidence supports it, and we would abandon it overnight if new evidence arose to disprove it.’ – Richard Dawkins

In discussing and dismissing the argument for intelligent design from irreducible complexity, Dawkins quixotically dissects examples from a book with no named author, published by the Jehovah Witness’ Watchtower Bible and Tract Society, entitled *Life – How Did It Get Here?* Dawkins easily blows away the argument that since the insect-trapping and purportedly ‘irreducibly complex’ plant *Aristolochia trilobata* (Dutchman’s Pipe) could not have happened ‘by chance’ it therefore must have been intelligently designed. Of course, as Dawkins points out: ‘Design is not the only alternative to chance. Natural selection is a better alternative.’ But such straw man bating is simply a red herring that avoids serious engagement with the far more sophisticated arguments of Intelligent Design theorists proper.

When Dawkins finally gets around to defining irreducible complexity, he summarizes the concept in his own words as follows: ‘A functioning unit is said to be irreducibly complex if the removal of one of its parts causes the whole to cease functioning.’ This unreferenced definition is an oversimplification of irreducible complexity as defined by the originator of the phrase, biochemist Michael J. Behe. Behe’s most notable presentation of irreducible complexity is *Darwin’s Black Box: the Biochemical Challenge to Evolution* (1996/2006), where he defined irreducible complexity as follows: ‘By *irreducibly complex* I mean a single system composed of several well-matched, interacting parts that contribute to basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning.’

To propose that a system (such as the flagellum) is irreducibly complex (IC) is not to argue for design by definition, but to lay the foundation for an inference to design from uniform experience. Behe observes that if a system is IC then it is impossible to evolve that system via a *direct* evolutionary pathway: ‘An irreducibly complex system cannot be produced directly... by slight, successive modifications of a precursor system, because any precursor to an irreducibly complex system that is missing a part is by definition non-functional.’ Behe admits that: ‘although irreducible complexity does rule out direct routes, it does not automatically rule out indirect ones.’ However, he argues that the more complex the IC system in question is (i.e. the more necessary parts it contains): ‘the more unlikely the indirect routes become.’ Behe does *not* move directly from the unlikelihood of an evolutionary explanation of an IC system to the hypothesis of intelligent design. Rather, he notes that:

irreducibly complex systems such as mousetraps and flagella serve both as negative arguments against gradualistic explanations like Darwin’s and as positive arguments for design. The negative argument is that such interactive systems resist explanation by the tiny steps that a Darwinian path would be expected to take [because direct routes are impossible and indirect routes unlikely]. The positive argument is that their parts appear arranged to serve a purpose, which is exactly how we detect design.

Hence Behe defends his argument against the charge that it is an argument ‘from present ignorance’:

there is a *structural reason* - irreducible complexity - for thinking that Darwinian explanations are unlikely to succeed. Furthermore... irreducible complexity is a hallmark of intelligent design... Truncating my case for intelligent design and then saying I commit the fallacy of *argumentum ad ignorantium* is not, in my opinion, fair play.

Dawkins fleetingly mentions Behe, but only to label him (inaccurately) as ‘the creationist Michael Behe... credited (if credited is the word) with moving creationism into a new area of biology: biochemistry and cell biology...’ Behe, the primary source of the argument Dawkins is opposing, apparently does not merit a single quotation by Dawkins (he’d rather dissect a popular work by an anonymous creationist), even when he critiques Behe’s most famous example: the bacterial flagellum. (Dawkins writes that the flagellum is ‘happily described as a tiny outboard motor – and unusually for a biological mechanism – it is a spectacularly inefficient one.’ However, the flagellum has an energy

conversion efficiency ‘close to 100%’ and Japanese scientists have studied it with the aim of producing energy saving nanotechnology; so it seems that Dawkins has his facts wrong.)

Dawkins dismisses ‘The absurd notion that such complexity could spontaneously self-assemble’ but asserts that ‘Evolution... goes around the back of [Mount Improbable] and creeps up the gentle slope to the summit: easy!’ Anyone familiar with the contemporary ID debate should know that such a response is far too ‘easy’; if a system is IC then it *cannot* evolve ‘directly’ round the back of Mount Improbable and is *unlikely* to evolve ‘indirectly’ up the back of Mount Improbable. Dawkins *deduces* the existence of a statistically plausible, indirect graded ramp up the back of Mount Improbable from the naturalistic assumption that evolution must be true; but as Danish philosopher Jakob Wolf observes:

An explanation of the evolution of an organism is scientifically adequate only if it is able to account for all the incremental steps required for the building of the system. These steps must be so small that their probability can be calculated. Which means that you should actually be able to quantify the probability of every small step, and so prove that it is reasonably probable that it constitutes a step on the evolutionary ladder. You also have to be able to prove that each step presents an advantage to the organism. Currently, there exist no Darwinian explanations of e.g. the bacterial flagellum which satisfy these criteria... Darwinian accounts purporting to account for the emergence of very complex systems are primarily expressions of the hope that the evolution of these systems is explainable by appeal to the Darwinian mechanism. They are wishful speculations.

Cell biologist Franklin Harold admits that ‘there are presently no detailed Darwinian accounts of the evolution of any biochemical or cellular system, only a variety of wishful speculations.’

Dawkins simplifies things for himself by expanding his over-simplified definition of irreducible complexity to include a requirement *that no parts of an IC system have any function outside of the IC whole to which they contribute* (something that is easier to get away with having failed to quote Behe’s own definition of irreducible complexity). Behe does *not* assume that an IC system is one in which the components of the system have no independent function. However, attributing this assumption to Behe allows Dawkins to follow Kenneth Miller in blithely dispatching Behe’s argument simply by pointing to the existence of the Type III secretory system:

molecular biologists have no difficulty in finding parts functioning outside the whole... In the case of the bacterial rotary engine, Millar calls our attention to a mechanism called the Type Three Secretory System or TTSS... To the evolutionist it is clear that TTSS components were commandeered for a new, but not wholly unrelated, function when the flagellar motor evolved.

However, Behe’s argument for design allows for the fact that the separate components of an irreducibly complex system may exhibit independent functionality: ‘there’s no reason that individual components of an irreducibly complex system could not be used for separate roles, or multiple separate roles, and I never wrote that they couldn’t.’ As Behe comments in a review of Dawkins’ previous book (*The Ancestor’s Tale*):

Miller's argument is that because the flagellum is more complex than we thought, that because it can act both as a protein pump as well as an outboard motor, then it is not irreducible. If the motor gets broken, remaining pieces may still act as a pump. That's like arguing that because, in addition to wheels and a motor, a car has a fuel pump, then it isn't irreducible either. If the tires are flat, the fuel pump can still work. Therefore we can imagine that the car could have been put together in small random steps. Such is the rigor of Darwinian thought.

Moreover, William A. Dembski points out that: 'At best the TTSS represents one possible step in the indirect Darwinian evolution of the bacterial flagellum. What's needed is a complete evolutionary path and not merely a possible oasis along the way. To claim otherwise is like saying we can travel by foot from Los Angeles to Tokyo because we've discovered the Hawaiian Islands.' And as Franklin Howard urges: 'we must concede that there are presently no detailed Darwinian accounts of the evolution of any biochemical system...' Two final points nail shut the coffin of the TTSS scenario. The first is that: 'The type III system itself is [IC], perhaps with ten IC components.' The second is that the best current molecular evidence: 'points to the TTSS evolving from the flagellum and not vice versa.' As the eminent Yale biochemist Robert Macnab wrote with reference to the TTSS and the flagellum in the *Annual Review of Microbiology* 2003: 'nature has found two good uses for this sophisticated type of apparatus. How they evolved is another matter, although it has been proposed that the flagellum is the more ancient device...' Thomas Woodward explains why:

*the flagellum is likely to have historically preceeded the TTSS.* This is indicated since the TTSS is found in *gram negative bacteria* that seem to have appeared in a later era, when more advanced kinds of cells called *eukaryotes* had appeared. These gram negative bacteria with TTSS injectors don't hassle other *prokaryotes* – bacterial life-forms. In essence, the current best evidence indicates that a flagellum devolved... into a tiny subsystem, the TTSS injector pump.

Despite his confidence that the flagellum easily evolved up some graded ramp or other up the back of Mount Improbable, Dawkins admits that when it comes to giving an evolutionary account of the flagellum: 'A lot more work needs to be done, of course...' In other words, Dawkins can't meet the burden of proof involved in empirically demonstrating the existence of a statistically plausible 'indirect' evolutionary path up the back of Mount Improbable for the bacterial flagellum; he can only deduce the existence of such a route from the fact that the flagellum exists and the philosophical assumption that it cannot have come into existence by intelligent design.

In the final analysis, what is most significant about Dawkins' discussion of irreducible complexity is not that he disagrees with Behe's conclusions, or that he justifies his disagreement by carelessly miss-defining Behe's central concept; or that he prefers to interact with 'an imaginary intelligent design theorist' than a real one; but rather that *Dawkins agrees with Behe that the concept of irreducible complexity is a testable scientific hypothesis that constitutes a critical test of Darwin's theory of evolution:*

Maybe there is something out there in nature that really does preclude, by its

genuinely irreducible complexity, the smooth gradient of Mount Improbable. The creationists are right that, if genuinely irreducible complexity could be properly demonstrated, it would wreck Darwin's theory. Darwin himself said as much... genuine irreducible complexity would wreck Darwin's theory if it were ever found...

### **Dawkins and the Anthropic Principle**

Dawkins notes that theologians who demure from arguments concerning 'flagellar motors and immune systems' may nevertheless advance arguments from 'the origin of life' because 'The root of evolution in non-biological chemistry somehow seems to present a bigger gap than any particular transition during subsequent evolution.' Dawkins himself questions this assumption, noting that Mark Ridley 'has suggested that the origin of the eukaryotic cell (our kind of cell, with a nucleus and various other complicated features such as mitochondria, which are not present in bacteria) was an even more momentous, difficult and statistically improbable step than the origin of life.'

Dawkins also suggests that 'The origin of consciousness might be another major gap whose bridging was of the same order of improbability.' Together with a growing number of scholars (David Chalmers notes that 'at least three prominent materialists who have abandoned the view in the last few years'), I would question Dawkins' assumption that the *quantitative* concept of physical improbability is applicable to the origin of a reality of such *qualitative* difference. Dawkins notes that 'Perceived hues – what philosophers call qualia – have no intrinsic connection with lights of particular wavelengths', but he fails to even ask whether the very existence of qualia and their reliable correlation with physical realities might not pose problems for a naturalistic worldview.

Nevertheless, the supposed spontaneous origin of life from inorganic chemistry does represent a significant and improbable historical change, and one that cannot be addressed in terms of evolution by natural selection, for as Dawkins notes: 'The origin of life was the chemical event, or series of events, whereby the vital conditions for natural selection first came about.' Dawkins' handles the improbability of jumping the gap between chemistry and the specified complexity of life by stating: 'The origin of life only had to happen once. We can therefore allow it to have been an extremely improbable event, many orders of magnitude more improbable than most people realize...' Dawkins then introduces the anthropic principle:

The anthropic principle was named by the British mathematician Brandon Carter in 1974 and expanded by the physicists John Barrow and Frank Tipler in their book on the subject. The anthropic argument is usually applied to the cosmos, and I'll come to that. But I'll introduce the idea on a smaller, planetary scale. We exist here on Earth. Therefore, Earth must be the kind of planet that is capable of generating and supporting us, however unusual, even unique, that kind of planet might be.

Already, at this early stage, we need to sound several notes of caution. The fact that we exist does indeed entail that our planet *is in fact* the kind of planet capable of supporting

us, however unusual (i.e. unlikely) that kind of planet may be. However, it does not entail that earth *must be* the kind of planet that is capable of supporting us if ‘must be’ is understood to mean that it is a necessary rather than a contingent truth that a life-friendly planet exists. Moreover, the mere fact that we exist on planet earth does not entail that earth is (let alone must be) ‘capable of generating’ our existence. To reach *that* conclusion one would have to accept the question-begging premise that our existence is not specifically dependent upon intelligent design.

Dawkins writes that ‘Around a typical star like our sun, there is a so-called Goldilocks zone – not too hot and not too cold, but just right – for planets with liquid water [a pre-requisite of life].’ In the very next paragraph Dawkins contradicts his incorrect statement that the sun is ‘a typical star’, noting that ‘Our sun is unusual in not being a binary, locked in mutual orbit with a companion star.’ Dawkins is right about both the unusual nature of our sun and about the existence of a so-called Goldilocks zone that the earth happily inhabits:

The sun is not a typical star; 95 percent of all stars are less massive than the sun. Less massive stars are less luminous, and thus a planet would have to be very close to the star to stay warm. But being close to the star is dangerous because of tidal effects. Also, at close distances the rotation of the planet becomes locked so that one side always faces the star... This rotational lock causes one side of the planet to freeze, the other side to burn. Stars much larger than the sun have life spans too short for life to occur. It is estimated that 70 percent of all stars are binary or multiple stars. Binary or multiple stars contain two or more stars orbiting each other. Stable planetary orbits are hard to imagine in such systems... A planet such as Venus, located closer to the sun than the habitable zone, would become too hot for life. A planet such as Mars, located farther from the sun than the habitable zone, would become too cold for life. With the earth at a distance from the sun of 1.0 AU (1 A.U equals 93 million miles), the width of the sun’s habitable zone is from 0.95 AU to 1.15 AU. Thus, the habitable zone for the sun is very narrow.

There are, observes Dawkins, two main explanations that have been offered ‘for our planet’s peculiar friendliness to life. The design theory says that God made the world, placed it in the Goldilocks zone, and deliberately set up all the details for our benefit.’ Of course, ID does not say that *God* is necessarily the culprit, for the simple reason that to specify the designer requires further evidence than provided by evidence of intelligent design. Neither design theorists nor theists (and the two groups overlap without being identical) would necessarily argue that the designer set up *all* the details of planet earth, or did so *solely* for human benefit. But what of the alternative explanation? Bizarrely, according to Dawkins, *the alternative non-design explanation is the anthropic principle itself*:

The anthropic approach is very different... The great majority of planets in the universe are not in the Goldilocks zones of their respective stars, and are not suitable for life. None of that majority has life. However small the minority of planets with just the right conditions for life may be, we necessarily have to be on one of that minority, because here we are thinking about it. It is a strange fact, incidentally, that religious apologists love the anthropic principle. For some

reason that makes no sense at all, they think it supports their case. Precisely the opposite is true. The anthropic principle, like natural selection, is an *alternative* to the design hypothesis. It provides a rational, design-free explanation for the fact that we find ourselves in a situation propitious to our existence. I think the confusion arises in the religious mind because the anthropic principle is only ever mentioned in the context of the problem it solves, namely the fact that we live in a life-friendly place. What the religious mind then fails to grasp is that two candidate solutions are offered to the problem. God is one. The anthropic principle is the other. They are *alternatives*.

However, the ‘problem’ that needs to be solved is *not* ‘the fact that we live in a life friendly place’ as Dawkins says (given our existence we obviously could not exist in a life unfriendly place), but rather *the fact that a life friendly place exists*. The anthropic principle ‘provides a rational, design-free explanation for the fact that we find ourselves in a situation propitious to our existence’, but it does not provide an explanation of any kind for the question as to why a situation propitious to our existence should exist in the first place. Dawkins is probably right to say that, ‘There are billions of planets in the universe, and, however small the minority of evolution-friendly planets may be, our planet necessarily has to be one of them’, but this anthropic *observation* has no bearing on explaining why an evolution-friendly planet exists. As Woodward explains, ‘the name anthropic principle is brought in as a quasi-synonym for fine-tuning.’ When this quasi-synonymic substitution happens, as it happens in *The God Delusion*, one obviously cannot appeal to the ‘anthropic principle’ to explain ‘fine tuning’. That would be like trying to use the concept of ‘bachelors’ to explain the existence of unmarried men! This, in effect, is precisely what Dawkins attempts to do.

## **Back to Abiogenesis**

Dawkins returns to the question of *abiogenesis*:

the spontaneous arising by chance of the first hereditary molecule strikes many as improbable. Maybe it is – very very improbable... The origin of life is a flourishing, if speculative, subject for research. The expertise required for it is chemistry and it is not mine. I watch from the sidelines with engaged curiosity, and I shall not be surprised if, within the next few years, chemists report that they have successfully midwived a new origin of life in the laboratory. Nevertheless it hasn’t happened yet, and it is still possible to maintain that the probability of it happening is, and always was, exceedingly low – although it did happen once! Just as we did with the Goldilocks orbits, we can make the point that, however improbable the origin of life might be, we know it happened on Earth because we are here. Again... there are two hypotheses to explain what happened – the design hypothesis and the... ‘anthropic’ hypothesis.

Many of those with the expertise Dawkins admits to lacking are not so confident. For example, Robert Shapiro writes:

A profound difficulty exists... with the idea of RNA, or any other replicator, at

the start of life. Existing replicators can serve as templates for the synthesis of additional copies of themselves, but this device cannot be used for the preparation of the very first such molecule, which must arise spontaneously from an unorganized mixture. The formation of an information-bearing [RNA chain or equivalent] through undirected chemical synthesis appears very improbable.

According to biochemist Stuart Pullen:

The hypothesis [of *abiogenesis*] is found in almost all biology books where it is put forth as the generally accepted theory. Yet in the scientific journals, scientists routinely dismiss many aspects of the hypothesis as highly improbable... When it comes to chemical evolution and the origin of life, science just doesn't have the answer... While several amino acids can be created under plausible conditions, proteins cannot be... many biologists mistakenly believe that it is quite easy to synthesize all of the required biological molecules. Nevertheless, a quick review of the relevant literature reveals that this is not true.

Having restudied this evidence, Nobel laureate Richard Smalley recently affirmed that life must have been created by an intelligence. The hypothesis that life sprang from non-life without the aid of intelligent design, as Dawkins' comments make clear, is *a philosophical deduction entailed by the assumption of naturalism*. It is, as Shapiro writes: 'mythology rather than science'. Dawkins contradicts his incoherent assertion that the alternative to the 'design hypothesis' is the anthropic principle:

the anthropic alternative to the design hypothesis is statistical. Scientists invoke the magic of large numbers... a billion billion is a conservative estimate of the number of available planets in the universe. Now, suppose the origin of life, the spontaneous arising of something equivalent to DNA, really was a quite staggeringly improbable event... If the odds of life originating spontaneously on a planet were a billion to one against, nevertheless that stupefying improbable event would still happen on a billion planets... I do not for a moment believe the origin of life was anywhere near so improbable in practice... Even accepting the most pessimistic estimate of the probability that life might spontaneously originate, this statistical argument completely demolishes any suggestion that we should postulate design...

Odds of 'a billion to one against' can be expressed as odds of 1 in  $10^9$ . In *Climbing Mount Improbable* Dawkins calculates: 'the probability that any particular sequence of, say 100, amino-acids will spontaneously form is [roughly] 1 in  $20^{100}$ . This is an inconceivably large number, *far greater than the number of fundamental particles in the entire universe*.' And yet here is Dawkins arguing that any suggestion that intelligent design might be the best explanation for the origin, not of a single chain of amino-acids at odds of 1 in  $20^{100}$ , but of *life capable of undergoing evolution*, is demolished by the 'statistical argument' that it only had to 'spontaneously originate' on a single planet out of 'a billion-billion'! Dawkins vastly underestimates the odds against the spontaneous generation of life. As Dean L. Overman complains: 'Many proponents of the origin of life by chance do not bother to perform the mathematical calculations which render their conclusions highly improbable.' Stephen C. Meyer calculates that to generate a single

functional protein of 150 amino acids exceeds: ‘1 chance in  $10^{180}$ ,’ and comments ‘it is extremely unlikely that a random search through all the possible amino acid sequences could generate even a single relatively short functional protein in the time available since the beginning of the universe...’

We have come a long way in our understanding of life since Ernst Haeckel described cells as ‘homogeneous globules of plasm’ in 1905. As Overman observes: ‘the difficulties in producing a protein from the mythical prebiotic soup are very large, but more difficult still is the probability of random processes producing the simplest living cell which represents an overwhelming increase in complexity’. David Swift comments:

Biologists have become increasingly aware that the real stumbling block to the origin of life is its complexity – complexity in terms of the interdependence of molecules and biochemical pathways within cell metabolism, and complexity at the molecular level of individual components. The combination of complexities at these different levels presents insurmountable difficulties to getting anything that is remotely life-like... the complexity of even the simplest forms of life, a bacterium is much closer to a human being than it is to any cocktail of organic compounds in some putative primeval soup... the core of the problem is the considerable complexity of even the ‘simplest’ forms of life, or even of some notional system that is stripped down to the theoretical bare necessities of life.

Fazale Rana and Hugh Ross report that: ‘Theoretical and experimental studies designed to discover the bare minimum number of gene products necessary for life all show significant agreement. Life seems to require between 250 and 350 different proteins to carry out its most basic operations.’ The simplest existing self-reproducing organism known outside the laboratory is the bacterium *Mycoplasma Genitalium*, which has 482 genes (two thirds of which have been shown to be necessary to its survival in the laboratory). Outside of the laboratory *Mycoplasma Genitalium* is ‘unable to sustain itself without parasitizing on an even more complex organism... Therefore a hypothetical first cell that could sustain itself would have to be even *more* complex.’ Rana and Ross argue:

the minimum complexity for independent life must reside somewhere between about 500 and 1,500 gene products. So far, as scientists have continued their sequencing efforts, all microbial genomes that fall below 1,500 belong to parasites. Organisms capable of permanent independent existence require more gene products. A minimum genome size (for independent life) of 1,500 to 1,900 gene products comports with what geochemical and fossil evidence reveals about the complexity of Earth’s first life. Earliest life forms displayed metabolic complexity that included photosynthetic and chemoautotrophic processes, protein synthesis, the capacity to produce amino acids, nucleotides, fatty acids and sugars [as well as] the machinery to reproduce. Some 1,500 different gene products would seem the bare minimum to sustain this level of metabolic activity... neither enough matter nor enough time in the universe exist for even the simplest bacterium to emerge by undirected chemical and physical processes.

Paul Davies writes that the odds against producing *just the proteins* necessary for a minimally complex life-form by pure chance are ‘something like  $10^{40,000}$  to one.’ No wonder Benjamin Wiker concludes: ‘there are insuperable problems in trying to explain,

via some mode of design-free evolutionary theory, how the first cells could have arisen'. As Swift concludes:

it is no longer tenable to hide behind millions or even billions of years – trying to argue that even the improbable becomes probable given time – nor even behind the argument that life did not have to evolve on earth but could have arisen on any one of an astronomical number of possible planets. The conclusion is plain and simple: the universe is not big enough or old enough, not by a factor of trillions of trillions... for the complexities of life to have arisen by random associations of simple organic molecules or of random mutations of proteins or nucleic acids.

Appealing to the existence of a billion billion life friendly planets (and they have to be *life friendly* planets) doesn't rescue the theory of spontaneous origination when the odds against the formation of a single functional protein are  $10^{180}$  to one. In point of fact, Dawkins' appeal to the existence of a billion billion life friendly planets is made in the teeth of the evidence, because as astronomer Danny R. Faulkner writes: 'it is unlikely that there are many, if any, other earth-like planets in the universe' able to sustain life. Benjamin Wiker reviews some of the finely tuned conditions that permit life on earth:

Our sun is not a typical star but is one of the 9 percent most massive stars in our galaxy, and is also very stable. Further, the sun hits the Goldilocks mean for life – neither too hot (like a blue or white star) nor too cold (like a red star) – and its peak emission is right at the visible part of the electromagnetic spectrum – the very, very thin band where not only vision is possible but also photosynthesis. Earth just 'happens' to have the right combination of atmospheric gases to block out almost all the harmful radiation on the electromagnetic spectrum but, strangely enough, opens like a window for visible light. Jupiter is deftly placed and sized so that it not only helps to balance the Earth's orbit but also acts as a kind of debris magnet keeping Earth from being pummeled. Our moon is just the right size and distance to stabilize earth's axial tilt so that we have seasonal variations but not wildly swinging temperature changes.

Hugh Ross reviews 200 parameters required for a life-bearing planet. Comparing the chances of a planet falling within these parameters by chance alone with our best estimate of the total number of planets in the universe ( $10^{22}$ ) he estimates that there is 'less than 1 chance in  $10^{215}$ ' of a habitable planet existing in the universe. Elsewhere, Ross argues:

fewer than a trillionth of a trillionth of a percent of all stars will have a planet capable of sustaining advanced life. Considering that the observable universe contains less than a trillion galaxies, each averaging a hundred billion stars, we can see that not even one planet would be expected, by natural processes alone, to possess the necessary conditions to sustain life.

Offering an updated Drake equation for calculating the number of intelligent civilizations in our Galaxy, astronomer Guillermo Gonzalez and philosopher Jay W. Richards conclude: 'the probability that the Milky Way Galaxy contains even one advanced civilization is likely to be much less than one. This is an interesting result, of course,

since we exist.’ Naturalistic astrobiologists Peter D. Ward and Donald Brownlee concede that: ‘If some god-like being could be given the opportunity to plan a sequence of events with the express goal of duplicating our “Garden of Eden”, that power would face a formidable task. With the best intentions, *but limited by natural laws and materials*, it is unlikely that Earth could ever be truly replicated.’ The fine-tuning of the non-cosmic preconditions of life both negate Dawkins’ hand-waving evocation of increased planetary probabilistic resources in the (forlorn) hope of avoiding the conclusion that life exhibits specified complexity, and to constitute an example of specified complexity in its own right.

### **The Anthropic Principle: Cosmic Version**

Dawkins correctly notes: ‘Physicists have calculated that, if the laws and constants of physics had been even slightly different, the universe would have developed in such a way that life would have been impossible.’ However, Dawkins attempts to use the anthropic principle as an *explanation* for this observation when it is in fact a restatement of the observation: ‘We live not only on a friendly planet but also in a friendly universe. It follows from the fact of our existence that the laws of physics must be friendly enough to allow life to arise.’ It follows from the observation that we exist that the laws of physics are compatible with our existence, but unfortunately for Dawkins it does *not* follow from the observation of our existence that the laws of physics are *necessarily* compatible with our existence. Dawkins’ anthropic ‘explanation’ flounders by equivocating over the meaning of the term ‘must’; and by treating the data to be explained as an explanation of the data to be explained, as the following quotation makes painfully clear:

The anthropic answer, in its most general form, is that we could only be discussing the question in the kind of universe that was capable of producing us. Our existence therefore determines that the fundamental constants of physics had to be in their respective Goldilocks zones.

Dawkins once again gives the lie to his false claim that the anthropic principle is itself an ‘explanation’ by referencing John Leslie’s analogy of the man sentenced to death by firing squad who survives to muse that ‘Well, obviously they all missed, or I wouldn’t be here thinking about it.’ As Dawkins says: ‘he could still, forgivably, wonder why they’d all missed, and toy with the hypothesis that they were bribed...’ In other words, the anthropic observation of the man’s existence post firing squad, depending as it does upon an unlikely set of preconditions (all the firing squad missing), does nothing to *explain* his existence, exclude the hypothesis of intelligent design, or guarantee the truth of a non-design explanation. As Guillermo Gonzalez points out:

The [anthropic principle] has been acknowledged for about a quarter of a century, but it was not until John Barrow and Frank Tipler published their massive technical work *The Anthropic Cosmological Principle* in 1986 that it was widely discussed. *The Weak Anthropic Principle* (WAP) is the most basic version--the simple recognition that the parameters we observe in our environment must not be incompatible with our existence. It is difficult to quarrel with the simple physical

interpretation of the WAP: it is just a type of observer selection bias. We should not be surprised to observe, for example, that we are living on a planet with an oxygen-rich atmosphere, for the simple reason that we require oxygen to live. The WAP 'explains' why we should not observe ourselves to be living on, say, Titan, but it fails to account for the origin of the oxygen in our atmosphere... However, Barrow and Tipler, no doubt motivated by the philosophical CP, have burdened the basic physical interpretation of the WAP with unwarranted philosophical extrapolations. In considering the WAP with regard to the observable universe, they claim that we ought not be surprised at measuring a universe so finely tuned for life, for if it were different, we would not observe it. But as Richard Swinburne first explained and as William Lane Craig and John Leslie later argued, we should indeed be surprised at observing features of the universe that are highly improbable and are necessary for our existence....

Swinburne famously used the example of a card-shuffling machine to advance the design argument from cosmic fine-tuning:

Suppose that a madman kidnaps a victim and shuts him in a room with a card-shuffling machine. The machine shuffles ten decks of cards simultaneously and then draws a card from each deck and exhibits simultaneously the ten cards. The kidnapper tells the victim that he will shortly set the machine to work and it will exhibit its first draw, but that unless the draw consists of an ace of hearts from each deck, the machine will simultaneously set off an explosion which will kill the victim, in consequence of which he will not see which cards the machine drew. The machine is then set to work, and to the amazement and relief of the victim the machine exhibits an ace of hearts drawn from each deck. The victim thinks that this extraordinary fact needs an explanation in terms of the machine having been rigged in some way. But the kidnapper, who now reappears, casts doubt on this suggestion. 'It is hardly surprising', he says, 'that the machine draws only aces of hearts. You could not possibly see *anything else*. For you would not be here to see anything at all, if any other cards had been drawn.' But of course the victim is right and the kidnapper is wrong. There is indeed something extraordinary in need of explanation in ten aces of hearts being drawn. The fact that this peculiar order is a necessary condition of the draw being perceived at all makes what is perceived no less extraordinary and in need of explanation. The teleologist's starting-point is not that we perceive order rather than disorder, but that order rather than disorder is there. Maybe only if order is there can we know what is there, but that makes what is there no less extraordinary and in need of explanation.

Swinburne's example shows that the fact that an event is a pre-condition of its being observed does not explain the occurrence of the event, or negate the obvious fact that 'the victim is right and the kidnapper is wrong' about intelligent design being the best explanation for the event described (which Swinburne offers as being a parallel to the fine-tuning of the cosmos). It is clear that Swinburne's card-shuffling machine example presents us with an instance of specified complexity. The kidnap victim is right, not merely because an 'extraordinary' (i.e. unlikely) event happened (the ace of hearts being drawn from each deck) but because this complex event is also specified (only this

‘peculiar’ event that will prevent the machine from exploding).

Jimmy H. Davies and Harry L. Poe explain that: ‘The Weak Anthropic Principle is a tautology; it states the obvious. If the universe was not fit for life, then we would not be here.’ This tautology does absolutely nothing to explain the surprising existence of specified complexity. While he seems to remain somewhat confused on the issue, Dawkins clearly admits that the anthropic principle does *not* provide answer the surprise of our existence:

The evolution of complex life, indeed its very existence in a universe obeying physical laws, is wonderfully surprising – or would be but for the fact that surprise is an emotion that can exist only in a brain which is the product of that very surprising process. There is an anthropic sense, then, in which our existence should not be surprising. I’d like to think that I speak for my fellow humans in insisting, nevertheless, that it is desperately surprising.

According to Dawkins: ‘This objection [to the no-design hypothesis] can be answered by the suggestion... that there are many universes...’ Whether or not Dawkins is right about this (the ‘many worlds’ move commits the ‘inflationary fallacy’ of multiplying probabilistic resources without independent evidence), it is important to notice that *Dawkins accepts the point of the stories told by Swinburne and Leslie*, which is that the anthropic principle is *not* ‘an alternative to the design hypothesis’ as Dawkins states, but is rather a description of the problem to which the design hypothesis is one answer and the many world’s hypothesis is another. As Gonzalez comments: ‘World Ensemble advocates are obviously driven by the desire to avoid the “God-hypothesis,” and, in adopting such extravagant and unnecessary assumptions, they are effectively conceding that the WAP has been impotent in discrediting the teleological interpretation.’ It is the ‘many world’s’ hypothesis that competes with the design hypothesis to explain the observation of a ‘life friendly’ universe, planet, etc., *not* the anthropic principle itself. The reason that ‘religious apologists love the anthropic principle’ is clearly *not* ‘some reason that makes no sense at all’, as Dawkins fatuously opines, but the belief that the design hypothesis is a better explanation of the anthropic principle than the many world’s hypothesis.

### **Dawkins’ ‘Unrebuttable Refutation’ Rebutted**

Dawkins champions what he considers ‘a very serious argument against the existence of God, and one to which I have yet to hear a theologian give a convincing answer despite numerous opportunities and invitations to do so. Dan Dennett rightly describes it as “an unrebuttable refutation...”’ Dawkins writes that this unrebuttable refutation of the God hypothesis is ‘the central argument of my book’, the heart of which runs as follows:

One of the greatest challenges to the [atheistic] human intellect, over the centuries, has been to explain how the complex, improbable appearance of design in the universe arises. The natural temptation is to attribute the appearance of design to actual design itself. In the case of a man-made artefact such as a watch, the designer really was an intelligent engineer. It is tempting to apply the same logic to an eye or a wing, a spider or a person. This temptation is a false one,

because the designer hypothesis immediately raises the larger problem of who designed the designer. The whole problem we started out with was the problem of explaining statistical improbability. It is obviously no solution to postulate something even more improbable. We need a 'crane', not a 'skyhook', for only a crane can do the business of working gradually and plausibly from simplicity to otherwise improbable complexity. The most ingenious and powerful crane so far discovered is Darwinian evolution by natural selection.

Design theorists will welcome Dawkins' re-affirmation of the fact that there exists an 'improbable appearance of design in the universe' and that the 'natural' thing to do is to attribute this 'appearance of design' to actual design. As Jakob Wolf argues:

Biological entities *appear* to be designed. It is very important to note that everybody agrees on *the phenomenological description* of the living organism. Disagreement sets in when it comes to explaining the nature of what everybody observes. Is it possible to account for the evolution of the complex organism by appeal to unintelligent causes alone, or does an intelligent cause need to be invoked? The most obvious conclusion to draw is that... an intelligent cause is needed. This perception of the matter is the one that most readily imposes itself upon us and has done for centuries. If you think otherwise, the burden of proof rests squarely with you.

Behe agrees:

A crucial, often-overlooked point is that the overwhelming appearance of design strongly affects the burden of proof: in the presence of manifest design, the onus of proof is on the one who denies the plain evidence of his eyes. For example, a person who conjectured that the statues on Easter Island or the images on Mount Rushmore were actually the result of unintelligent forces would bear the substantial burden of proof the claim demanded. In those examples, the positive evidence for design would be there for all to see in the purposeful arrangement of parts to produce the images. Any putative evidence for the claim that the images were actually the result of unintelligent processes (perhaps erosion shaped by some vague, hypothesized chaotic forces) would have to clearly show that the postulated unintelligent process could indeed do the job. In the absence of such a clear demonstration, any person would be rationally justified to prefer the design explanation.

Faced with the claim that the bacterial flagellum is irreducibly complex (and therefore best explained in terms of design), Dawkins misrepresents the ID argument and begs the question by *deducing* the existence of an 'easy', indirect path up the back of Mount Improbable from his assumption that there is no designer. Darwinian evolution by natural selection may indeed be the 'most ingenious and powerful crane so far discovered', but being the best available explanation compatible with the assumption of naturalism does not guarantee being a plausible explanation (let alone the best available explanation). Indeed, Dawkins' poor handling of the IC test demonstrates that we should remain sceptical of the claim that evolution can 'do the business' and receptive towards the hypothesis of intelligent design.

Of course, Dawkins has what he considers an un rebuttable response to this line of thought ready and waiting: 'the designer hypothesis immediately raises the larger problem of who designed the designer. The whole problem we started out with was the problem of explaining statistical improbability. It is obviously no solution to postulate something even more improbable.' There may actually be two overlapping objections here: the 'who designed the designer' objection, and the 'explaining something with something more complex' objection. The 'who designed the designer' objection is a question that can be posed to *all* design inferences, but as Jay Richards observes, no one would raise this question as an objection to the design inference in any other field of explanation: 'If someone explains some buried earthenware as the result of artisans from the second century bc, no one complains, "Yeah, but who made the artisans?"' Even supposing we can't answer the 'who designed the designer' question, this does nothing to invalidate the inference that there was a designer. Dawkins fundamentally misunderstands the nature of explanation. William Lane Craig comments:

It is widely recognized that in order for an explanation to be the best explanation, one needn't have an explanation of the explanation (indeed, such a requirement would generate an infinite regress, so that everything becomes inexplicable)... believing that the design hypothesis is the best explanation... doesn't depend upon our ability to explain the designer.

As William A. Dembski notes: 'The who-designed-the-designer question invites a regress that is readily declined... because such a regress arises whenever scientists introduce a novel theoretical entity... the question is whether design does useful conceptual work.' Dawkins objects that: 'A designer God cannot be used to explain organized complexity because any God capable of designing anything would have to be complex enough to demand the same kind of explanation in his own right. God presents an infinite regress from which he cannot help us to escape.' In other words, the argument is that:

1. Once you posit one designer to explain organized complexity you have to posit an infinite regress of designers (because any designer capable of designing anything would necessarily demand the same kind of explanation in its own right, and so on),
2. but there cannot be an infinite regress of designers,
3. therefore one cannot rationally posit a designer in the first place.

Being consistent, one must of course make exactly the same objection to the design inference in every case, *including the cases that Dawkins himself admits are legitimate* (such as the design inference from a sequence of prime numbers in a radio signal). The obvious legitimacy of design inferences in some cases constitutes an *ad absurdum* argument against the soundness of the above, logically valid argument. Dawkins rejects the plausibility of explanations framed in terms of an infinite regress, and objects to the design inference using a premise that implies the necessity of just such an infinite regress of explanations in all cases, despite the fact that he accepts the design inference in some cases. He can't have it both ways. Unless Dawkins is prepared to eliminate design inferences altogether, he must reject the 'who designed the designer' objection as unsound. Since the argument is logically valid, he can do this either by embracing explanations framed in terms of an infinite regress, or by rejecting the premise that once

you posit one designer you have to posit an infinite regress of designers. Dawkins actually rejects the first premise of the ‘who designed the designer’ objection (as do I), accepting the validity of design inferences where the posited designer is an agent that he thinks he can maintain is a wholly physical being that *must* (he deduces) have some sort of an evolutionary explanation: ‘The crucial difference between gods and god-like extraterrestrials lies not in their properties but in their provenance. Entities that are complex enough to be intelligent are products of an evolutionary process. No matter how god-like they may seem when we encounter them, they didn’t start that way.’ Once again, Dawkins simply resorts to *asserting* his naturalistic worldview, begging the question against his opponents. As Woodward explains: ‘Dawkins... veers here into blatant circular argumentation. He simply asserts – without any evidence-based argument or philosophical proof – that no intelligence can ever exist who is a necessary (uncaused) being...’

According to Dawkins: ‘God, or any intelligent, decision-making, calculating agent, would have to be highly improbable in the very same statistical sense as the entities he is supposed to explain.’ This is incorrect. Part of the crucial difference between a God and god-like extraterrestrials is that the former’s provenance is radically different because some of its properties are radically different from those of the latter. For example, if God exists then God is a necessary being and not a contingent being, whereas if an alien exists it is a contingent being and not a necessary being.

Swinburne argues that, as ‘the greatest possible being’, God is *metaphysically simple* in a way that finite entities are not. With a finite entity one always has questions about why it has this or that property and why it has this or that degree of this or that property. Such questions do not arise with God, because, as a matter of definition, God must have the maximum possible amount of every great making property (goodness, power, knowledge, etc), including the great making property of ontological security (being uncaused, independent and necessarily existent). As J.P. Moreland and William Lane Craig point out that: ‘A mind’s ideas may be complex, but a mind itself is a remarkably simple thing, being an immaterial entity not composed of pieces or separable parts.’ Unlike a watch, God is not a contingent physical object composed of separable parts that are combined in a contingent order and which can therefore be assigned a statistical probability of one possible arrangement out of a certain finite number of possible arrangements. Not only is God not a physical object, but God is not even a contingent object; and it is a pre-requisite of the design inference that it begin with a contingent object of study. As Dembski explains: ‘Because information presupposes contingency, necessity is by definition incapable of producing information, much less complex specified information...’

Precisely because it is unreasonable to posit explanations framed in terms of an infinite regress, it is reasonable to hold that not all designers can require a designer and therefore that not all designers exhibit specified complexity. If the universe exhibits signs of design (i.e. specified and/or irreducible complexity) that would otherwise imply an infinite regress of designers, it is reasonable to hypothesise the existence of a designer who does not exhibit such signs of design and thus does not trigger a design inference. A necessarily existent theistic deity is clearly a prime candidate for a designer who exhibits no specified or irreducible complexity.

**Conclusion: The Wise Man Built His House Upon the Rock**

‘The reviews have been mixed – it’s the luck of the draw whether or not you get a religious person.’ – Richard Dawkins

Like his reviews and his reviewers, Dawkins’ *The God Delusion* is a mixed bag. Jim Holt’s assessment of *The God Delusion* is, in my opinion, actually rather understated:

The book fairly crackles with brio. Yet reading it can feel like watching a Michael Moore movie. There are lots of good, hard-hitting stuff about the imbecilities of religious fanatics and frauds of all stripes, but the tone is smug and the logic occasionally sloppy.

As both an ‘educated’ Christian and an ID theorist I find plenty with which to take issue in *The God Delusion* (more than is discussed here indeed); primarily because this rhetorical *tour de force* relies upon setting up and knocking down straw men. According to P.Z. Myers: ‘The first half of *The God Delusion* delivers a thorough overview of the logic of belief and disbelief. Dawkins reviews, dismantles, and dismisses the major arguments for the existence of the supernatural and deities.’ Myers is mistaken. Dawkins’ review of natural theology is anything but ‘thorough’ in either breadth or depth, and mainly consists of dismantling straw men. As Holt points out, Dawkins:

dismisses the ontological argument as ‘infantile’ and ‘dialectical prestidigitation’ without quite identifying the defect in its logic. He seems unaware that this argument, though medieval in origin, comes in sophisticated modern versions that are not at all easy to refute. Shirking the intellectual hard work, Dawkins prefers to move on... Dawkins’ failure to appreciate just how hard philosophical questions about religion can be makes reading [*The God Delusion*] an intellectually frustrating experience.’

Dawkins’ response to the argument from religious experience (which he never actually spells out) is merely to point out that experiences can be delusional: ‘the brain’s simulation software... is well capable of constructing “visions” and “visitations” of the utmost veridical power. To simulate a ghost or an angel or a Virgin Mary would be child’s play to software of this sophistication.’ This single observation concludes Dawkins’ attempted rebuttal of the argument from religious experience:

This is really all that needs to be said about personal ‘experiences’ of gods or other religious phenomena. If you’ve had such an experience, you may well find yourself believing firmly that it was real. But don’t expect the rest of us to take your word for it, especially if we have the slightest familiarity with the brain and its powerful workings.

Dawkins’ supposed rebuttal of the argument from religious experience *doesn’t even rise to the level of an argument*, since it fails to contain more than one premise. Merely observing that the brain can create illusions provides no reason for the conclusion that all religious experiences are illusory. Indeed, without a premise that restricts the illusion-giving power of the brain to religious experiences, Dawkins’ rebuttal counts equally against all experiences, including those which lead him to believe that human beings

have brains ‘capable of constructing “visions” and “visitations” of the utmost veridical power.’ Hence, *Dawkins’ rebuttal of the argument from religious experience is self-defeating.*

In a quotation free discussion of the matter, Dawkins claims that the famous five ‘ways’ of Thomas Aquinas ‘are easily – though I hesitate to say so, given his eminence – exposed as vacuous.’ Dawkins really should have hesitated more and written less. Noting Aquinas’ use of the principle that a causal regress must terminate somewhere (lest, *per impossible*, it becomes infinite), Dawkins complains that Aquinas’ cosmological argument makes ‘the entirely unwarranted assumption that God himself is immune to the regress.’ Dawkins fails to recognize that the cosmological argument *just is* an argument for the necessity of postulating the existence of a being that is ‘immune to the regress’!

After summarizing Aquinas’ fourth way (from degrees of perfection) Dawkins attempts a *reductio ad absurdum*: ‘That’s an argument? You might as well say, people vary in smelliness but we can make the comparison only by reference to a perfect maximum of conceivable smelliness. Therefore there must exist a pre-eminently peerless stinker, and we call him God.’ Dawkins fails to notice that Aquinas’ argument works with ‘great-making properties’, a philosophically well defined class of properties into which ‘smelliness’ – the subject of Dawkins’ rebuttal – simply does not fall. As Christopher F.J. Martin observes, although ‘the existence of a more and a less does indeed require the existence of a *de facto* most’, Aquinas is concerned with the existence of more and a less in terms of properties that by definition admit of an intrinsic and logical maximum, rather than a merely *de facto* maximum. E.L. Mascall explains: ‘Goodness, so the argument claims, demands as its cause a God who is good; while heat, though it necessarily demands a God whose knowledge of possible being includes an idea of heat, does not demand a God who is hot as its cause, but only a God who can create.’ Dawkins’ chapter on the roots of morality simply fails to engage with the central question of whether or not objective moral values exist and entail God’s existence.

Dawkins delivers a feast of fallacies in *The God Delusion*, including: assertion making, wishful thinking, equivocation, data picking, ridiculing anything he cannot understand (on the apparent assumption that there must therefore be nothing to understand) and various *ad hominem* attacks, from name-calling (e.g. ‘dyed-in-the-wool faith-heads are immune to argument’) to ‘poisoning the well’ (e.g. tendentiously talking about ‘Phillip E. Johnson who leads the *creationist* charge against Darwinism in America’ and ‘*creationist* Michael Behe’). As we have seen, he also attempts to advance a tautology as an explanation and contradicts himself on several occasions.

However, I find plenty with which to agree with in *The God Delusion* (e.g. that religious faith should not be ‘blind’ faith). Dawkins isn’t wrong about everything. In particular, as a philosopher I welcome Dawkins’ recognition that ID theorists are building upon solid foundations:

- 1 Science is ‘the honest and systematic endeavour to find out the truth about the real world.’
- 2 Since the only good reason to believe in evolution is ‘because the evidence supports it,’ we should ‘abandon it overnight if new evidence arose to disprove it.’
- 3 ‘The presence or absence of a creative super-intelligence is unequivocally a scientific question, even if it is not in practice – or not yet – a decided one... The methods we should use to settle the matter... would be purely and entirely

- scientific methods.’
- 4 Patterns exhibiting specified complexity are reliable indicators of intelligent design: ‘Metronomic rhythms can be generated by many non-intelligent phenomena... Nothing simply rhythmic, then, would announce our intelligent presence to the waiting universe... Prime numbers are often mentioned as the recipe of choice, since it is difficult to think of a purely physical process that could generate them.’
  - 5 Irreducible complexity provides a valid scientific test of Darwinism: ‘Maybe there is something out there in nature that really does preclude, by its genuinely irreducible complexity, the smooth gradient of Mount Improbable... if genuinely irreducible complexity could be properly demonstrated, it would wreck Darwin’s theory. Darwin himself said as much... genuine irreducible complexity would wreck Darwin’s theory if it were ever found...’

Dawkins thinks that no specified or irreducible complexity has, as yet, been discovered in pre-history. ID theorists such as myself disagree with this assessment of the evidence, but at least we are agreed that the above theoretical foundations of ID are sound and that the crucial question is whether or not the evidence justifies a design inference. As we have seen, Dawkins’ arguments to the contrary are about as impressive as the big bad wolf’s attempt to blow away the house of brick.

### **Recommended Resources on Dawkins, Science & ID**

Access Research Network @ [www.arn.org](http://www.arn.org)

Discovery Institute Centre for Science and Culture @ [www.discovery.org/csc/](http://www.discovery.org/csc/)

The Richard Dawkins Foundation for Reason & Science @ <http://richarddawkins.net/>

#### **Watch**

William A. Dembski, ‘Order and Design: Philosophical Issues’ @ [www.meta-library.net/perspevo/wdemb-frame.html](http://www.meta-library.net/perspevo/wdemb-frame.html)

*A Rotary Nano-Machine* @ [www.nanonet.go.jp/english/mailmag/2004/files/011a.wmv](http://www.nanonet.go.jp/english/mailmag/2004/files/011a.wmv)

Scott Minnich, ‘Paradigm of Design: The Bacterial Flagellum’ @ [http://webcast.ucsd.edu:8080/ramgen/UCSD\\_TV/8547.rm](http://webcast.ucsd.edu:8080/ramgen/UCSD_TV/8547.rm)

Stephen C. Meyer, ‘Intelligent Design Theory’ @ [www.meta-library.net/perspevo/pressm-frame.html](http://www.meta-library.net/perspevo/pressm-frame.html)

ID Debate: Stephen C. Meyer vs. Peter D. Ward @ [www.discovery.org/scripts/viewDB/index.php?command=view&id=3456&program=DI%20Main%20Page%20-%20News&callingPage=discoMainPage](http://www.discovery.org/scripts/viewDB/index.php?command=view&id=3456&program=DI%20Main%20Page%20-%20News&callingPage=discoMainPage)

Dean Kenyon, *The Origin of Life (Focus on Origins series sponsored by UC Santa Barbara)* @ [http://webcast.ucsd.edu:8080/ramgen/UCSD\\_TV/6470oriLif.rm](http://webcast.ucsd.edu:8080/ramgen/UCSD_TV/6470oriLif.rm)

Robert C. Koons, ‘Science & Religion: Concord not Conflict’ @ [http://webcast.ucsd.edu:8080/ramgen/UCSD\\_TV/7828.rm](http://webcast.ucsd.edu:8080/ramgen/UCSD_TV/7828.rm)

Charles Thaxton, *The Origin of Life II* (Focus on Origins series sponsored by UC Santa Barbara) @ [http://webcast.ucsd.edu:8080/ramgen/UCSD\\_TV/6464OnTheOriLif.rm](http://webcast.ucsd.edu:8080/ramgen/UCSD_TV/6464OnTheOriLif.rm)

Jonathan Wells, 'Icons of Evolution' @ [http://webcast.ucsd.edu:8080/ramgen/UCSD\\_TV/6466IcoEvoJonWel.rm](http://webcast.ucsd.edu:8080/ramgen/UCSD_TV/6466IcoEvoJonWel.rm)

*Unlocking the Mystery of Life* (Illustra Media) @ [www.theapologiaproject.org/media/unlocking\\_the\\_mystery\\_of\\_life.rm](http://www.theapologiaproject.org/media/unlocking_the_mystery_of_life.rm)

*The Privileged Planet* (Illustra Media) @ [www.theapologiaproject.org/media/the\\_privileged\\_planet.rm](http://www.theapologiaproject.org/media/the_privileged_planet.rm)

### **Listen**

John Lennox, 'God and Richard Dawkins' @ [www.bethinking.org/resource.php?ID=290](http://www.bethinking.org/resource.php?ID=290)

Peter S. Williams, 'An Introduction to Intelligent Design Theory' @ [www.cis-centralsouth.org.uk/media/2006-intelligent-design/PeterWilliams.vbr.mp3](http://www.cis-centralsouth.org.uk/media/2006-intelligent-design/PeterWilliams.vbr.mp3)

### **On-Line Papers**

Denis Alexander, 'A Clash of Fundamentalisms' @ [www.bethinking.org/resource.php?ID=252&TopicID=2&CategoryID=1](http://www.bethinking.org/resource.php?ID=252&TopicID=2&CategoryID=1)

D.D. Axe, 'Extreme Functional Sensitivity to Conservative Amino Acid Changes on Enzyme Exteriors' @ [http://nsmserver2.fullerton.edu/departments/chemistry/evolution\\_creation/web/AxeProteinEvolution.pdf](http://nsmserver2.fullerton.edu/departments/chemistry/evolution_creation/web/AxeProteinEvolution.pdf)

Michael J. Behe, 'A Response to Critics of *Darwin's Black Box*' @ [www.iscid.org/papers/Behe\\_ReplyToCritics\\_121201.pdf](http://www.iscid.org/papers/Behe_ReplyToCritics_121201.pdf)

Michael J. Behe, 'Answering Scientific Criticisms of Intelligent Design' @ [www.discovery.org/scripts/viewDB/filesDB-download.php?id=60](http://www.discovery.org/scripts/viewDB/filesDB-download.php?id=60)

Michael J. Behe, 'A True Acid Test: A Response to Ken Miller' @ [www.arn.org/docs/behe/mb\\_trueacidtest.htm](http://www.arn.org/docs/behe/mb_trueacidtest.htm)

Michael J. Behe, 'The Pilgrim's Regress: A Review of *The Ancestor's Tale*' @ [www.arn.org/docs/behe/mb\\_ancestorstalereview\\_0506.htm](http://www.arn.org/docs/behe/mb_ancestorstalereview_0506.htm)

Michael J. Behe & David W. Snoke, 'Simulating evolution by gene duplication of protein features that require multiple amino acid residues', @ [www.proteinscience.org/cgi/content/abstract/ps.04802904v1](http://www.proteinscience.org/cgi/content/abstract/ps.04802904v1)

William Lane Craig, 'The Teleological Argument and the Anthropic Principle' @ [www.leaderu.com/offices/billcraig/docs/teleo.html](http://www.leaderu.com/offices/billcraig/docs/teleo.html)

William Lane Craig, 'Barrow and Tipler on the anthropic principle vs. Divine Design' @ [www.leaderu.com/offices/billcraig/docs/barrow.html](http://www.leaderu.com/offices/billcraig/docs/barrow.html)

Dave Crofts, 'The Root of all Evil? Part 1' @ [www.christchurchcentral.co.uk/culture/rootofallevil1\\_1.html](http://www.christchurchcentral.co.uk/culture/rootofallevil1_1.html)

Dave Crofts, 'The Root of all Evil? Part 2' @ [www.christchurchcentral.co.uk/culture/rootofallevil2\\_1.html](http://www.christchurchcentral.co.uk/culture/rootofallevil2_1.html)

Rich Deem, 'Scientific Evidence for Answered Prayer' @

[www.godandscience.org/apologetics/prayer.html](http://www.godandscience.org/apologetics/prayer.html)

William A. Dembski, 'Still Spinning Just Fine: A Response to Ken Miller' @ [www.designinference.com/documents/2003.02.Miller\\_Response.htm](http://www.designinference.com/documents/2003.02.Miller_Response.htm)

William A. Dembski, 'Irreducible Complexity Revisited' @ [www.designinference.com/documents/2004.01.Irred\\_Compl\\_Revisited.pdf](http://www.designinference.com/documents/2004.01.Irred_Compl_Revisited.pdf)

Mike Gene, 'Irreducible Complexity and Darwinian Pathways' @ [www.arn.org/docs/behe/mb\\_mgldarwinianpathways.htm](http://www.arn.org/docs/behe/mb_mgldarwinianpathways.htm)

Mike Gene, 'Irreducible Complexity ReVisited' @ [www.idthink.net/back/ic/index.html](http://www.idthink.net/back/ic/index.html)

Mike Gene, 'Evolving the Bacterial Flagellum Through Mutation and Cooption' @ [www.idthink.net/biot/flag1/index.html](http://www.idthink.net/biot/flag1/index.html)

Robert C. Koons, 'The Incompatibility of Naturalism and Scientific Realism' @ [www.leaderu.com/offices/koons/docs/natreal.html](http://www.leaderu.com/offices/koons/docs/natreal.html)

Robert C. Koons, 'Do Anthropic Coincidences Require Explanation?' @ [www.leaderu.com/offices/koons/docs/lec11.html](http://www.leaderu.com/offices/koons/docs/lec11.html)

Wolf-Ekkehard Lonning, 'Dynamic genomes, morphological stasis, and the origin of irreducible complexity', @ [www.weloennig.de/DynamicGenomes.pdf](http://www.weloennig.de/DynamicGenomes.pdf)

Stephen C. Meyer, 'The Origin of Biological Information and the Higher Taxonomic Categories' @ [www.discovery.org/scripts/viewDB/index.php?command=view&id=2177&program=CSC%20-%20Scientific%20Research%20and%20Scholarship%20-%20Science](http://www.discovery.org/scripts/viewDB/index.php?command=view&id=2177&program=CSC%20-%20Scientific%20Research%20and%20Scholarship%20-%20Science)

Gordon C. Mills & Dean Kenyon, 'The RNA World: A Critique' @ [www.arn.org/docs/odesign/od171/rnaworld171.htm](http://www.arn.org/docs/odesign/od171/rnaworld171.htm)

Scott A. Minnich & Stephen C. Meyer, 'Genetic Analysis of Coordinate Flagellar and Type III Regulatory Circuits in Pathogenic Bacteria' @ [www.discovery.org/scripts/viewDB/index.php?command=view&id=2181](http://www.discovery.org/scripts/viewDB/index.php?command=view&id=2181)

Albert Mohler, 'The Dawkins Delusion' @ [www.crosswalk.com/news/weblogs/mohler/?adate=09/26/2006](http://www.crosswalk.com/news/weblogs/mohler/?adate=09/26/2006)

Nick Pollard, 'The Root of all Evil? The problem with Richard Dawkins' faith - part 1' @ [www.bethinking.org/resource.php?ID=243&TopicID=2&CategoryID=1](http://www.bethinking.org/resource.php?ID=243&TopicID=2&CategoryID=1)

Nick Pollard, 'The Root of all Evil? The problem with Richard Dawkins' faith - part 2' @ [www.bethinking.org/resource.php?ID=244&TopicID=2&CategoryID=1](http://www.bethinking.org/resource.php?ID=244&TopicID=2&CategoryID=1)

Ø. A. Voie, 'Biological function and the genetic code are interdependent', @ <http://home.online.no/~albvoie/index.cfm>

Peter S. Williams, 'Atheism and Child Abuse' @ [www.arn.org/docs/williams/pw\\_atheismchildabuse.htm](http://www.arn.org/docs/williams/pw_atheismchildabuse.htm)

Peter S. Williams, 'Darwin's Rottweiler and the Public Understanding of Scientism' @ [www.arn.org/docs/williams/pw\\_dawkinsfallacies.htm](http://www.arn.org/docs/williams/pw_dawkinsfallacies.htm)

Peter S. Williams, 'Is Life Designed or Designoid? Dawkins, Science and the Purpose of Life' @ [www.arn.org/docs/williams/pw\\_purposeoflife.htm](http://www.arn.org/docs/williams/pw_purposeoflife.htm)

Peter S. Williams, ““What do you believe is true even though you cannot prove it?” – Comparing Dawkins’ Blind Faith with Flew’s Evidence’ @ [www.arn.org/docs/williams/pw\\_comparingdawkinsflew.htm#\\_ednref6](http://www.arn.org/docs/williams/pw_comparingdawkinsflew.htm#_ednref6)

### **Books**

Michael J. Behe, *Darwin’s Black Box*, 10<sup>th</sup> anniversary edition, (Free Press, 2006)

John Angus Campbell & Stephen C. Meyer (ed.’s), *Darwinism, Design, & Public Education*, (Michigan State University Press, 2003)

William A. Dembski, *The Design Revolution: Answering the Toughest Questions about Intelligent Design*, (IVP, 2004)

William A. Dembski, *No Free Lunch: Why Specified Complexity Cannot be Purchased without Intelligence*, (Rowman & Littlefield, 2001)

David DeWolf, John West, Casey Luskin & Jonathan Witt, *Traipsing Into Evolution: Intelligent Design And The Kitzmiller vs. Dover Decision*, (Discovery Institute, 2006)

Guillermo Gonzalez & Jay Richards, *The Privileged Planet: How Our Place in the Cosmos Is Designed for Discovery*, (Regnery, Jan. 2004)

Antony Latham, *The Naked Emperor: Darwinism Exposed*, (Janus, 2005)

Alister McGrath, *Dawkins’ God: Genes, Memes, and the Meaning of Life*, (Blackwell, 2005)

Stuart Pullen, *Intelligent Design or Evolution? Why the Origin of Life and the Evolution of Molecular Knowledge Imply Design*, (Intelligent Design Books, 2005)

Fazale Rana & Hugh Ross, *Origins of Life*, (NavPress, 2004)

David Swift, *Evolution under the microscope*, (Leighton Academic, 2002)

Peter D. Ward & Donald Brownlee, *Rare Earth: Why Complex Life Is Uncommon in the Universe*, (Copernicus, 2000)

Peter S. Williams, *I Wish I Could Believe in Meaning: A Response to Nihilism*, (Damaris, 2005)

Thomas Woodward, *Doubts About Darwin: A History of Intelligent Design*, (Baker, 2003)

Thomas Woodward, *Darwin Strikes Back: Defending the Science of Intelligent Design*, (Baker, 2006)

### **Recommended Resources on Theism & Christianity**

#### **Websites**

Apollos @ [www.apollos.ws/](http://www.apollos.ws/)

Bethinking @ [www.bethinking.org](http://www.bethinking.org)

Lee Strobel @ [www.leestrobel.com/index.html](http://www.leestrobel.com/index.html)

## **Watch**

Craig L. Blomberg, 'In Search of the Historical Jesus' @ [www.veritas.org/mediafiles/VT-Blomberg%20UCSB-XC.mov](http://www.veritas.org/mediafiles/VT-Blomberg%20UCSB-XC.mov)

## **Listen**

William lane Craig, 'The Evidence for Christianity' @ [www.bethinking.org/resource.php?ID=100&TopicID=1&CategoryID=2](http://www.bethinking.org/resource.php?ID=100&TopicID=1&CategoryID=2)

William Lane Craig, 'Defending the True Historical Jesus' @ [www.isucru.com/debate/audio/Defending%20the%20True%20historical%20Jesus%20by%20by%20](http://www.isucru.com/debate/audio/Defending%20the%20True%20historical%20Jesus%20by%20by%20)

William Lane Craig vs. John Dominic Crossan, 'Will the real Jesus please stand up?' @ [www.bringyou.to/CraigCrossanDebate.mp3](http://www.bringyou.to/CraigCrossanDebate.mp3)

William Lane Craig & Gerd Ludemann, 'Jesus' Resurrection: Fact or Figment?' @ [www.bringyou.to/CraigLudemannResurrectionDebate.mp3](http://www.bringyou.to/CraigLudemannResurrectionDebate.mp3)

William Lane Craig vs. Frank Zindler, 'Atheism versus Christianity - Where does the evidence point?' @ [www.bringyou.to/CraigZindlerDebate.mp3](http://www.bringyou.to/CraigZindlerDebate.mp3)

J.P. Moreland (intro Ronald Larson) @ 'Love Your God With All Your Mind' @ <http://hisdefense.org/LinkClick.aspx?link=Audio%2fMoreland+-+Apologetics+Seminar.ram&tabid=136&mid=938>

J.P. Moreland, 'The Modern Search for the Historic Jesus' @ [www.veritas.org/mediafiles/VTS-Moreland-1997-UNCA-97VFNC04.mp3](http://www.veritas.org/mediafiles/VTS-Moreland-1997-UNCA-97VFNC04.mp3)

J.P. Moreland, 'How do we know Christianity is right out of all the religions?' @ [www.bethinking.org/resource.php?ID=191&TopicID=1&CategoryID=2](http://www.bethinking.org/resource.php?ID=191&TopicID=1&CategoryID=2)

## **On-Line Papers**

Richard Baukham, 'The Eyewitnesses and the Gospel Traditions' @ [www.apollos.ws/nt-historical-reliability/BaukhamRichardJHRG1.pdf](http://www.apollos.ws/nt-historical-reliability/BaukhamRichardJHRG1.pdf)

Stephen J. Bedard, 'Paul and the Historical Jesus: A Case Study in First Corinthians' @ [www.mcmaster.ca/mjtm/pdfs/vol7/MJTM\\_7-1\\_Bedard.pdf](http://www.mcmaster.ca/mjtm/pdfs/vol7/MJTM_7-1_Bedard.pdf)

Craig L. Blomberg, 'The Historical Reliability of the Gospels' @ [www.4truth.net/site/apps/nl/content3.asp?c=hiKXLbPNLrF&b=784441&ct=981289&printmode=1](http://www.4truth.net/site/apps/nl/content3.asp?c=hiKXLbPNLrF&b=784441&ct=981289&printmode=1)

Craig L. Blomberg, 'The Historical Reliability of John' @ [www.4truth.net/site/apps/nl/content3.asp?c=hiKXLbPNLrF&b=784441&ct=981291&printmode=1](http://www.4truth.net/site/apps/nl/content3.asp?c=hiKXLbPNLrF&b=784441&ct=981291&printmode=1)

F.F. Bruce, 'The New Testament Documents: Are They Reliable?' @ [http://ananswer.org/school/certification/ntdocumentsandreliability/new%20testament%20documents-%20are%20they%20reliable\\_%20off%20bruce.pdf](http://ananswer.org/school/certification/ntdocumentsandreliability/new%20testament%20documents-%20are%20they%20reliable_%20off%20bruce.pdf)

Paul Copan, 'You Can't Trust the Gospels. They're Unreliable' @ [www.countercult.com/r14ac.html](http://www.countercult.com/r14ac.html)

Paul Copan, 'Jesus' followers fabricated the stories and sayings of Jesus' @

[www.bethinking.org/resource.php?ID=9&TopicID=1&CategoryID=2](http://www.bethinking.org/resource.php?ID=9&TopicID=1&CategoryID=2)

William Lane Craig, 'Rediscovering the Historical Jesus: Presuppositions and Pretensions of the Jesus Seminar' @

[www.leaderu.com/offices/billcraig/docs/rediscover1.html](http://www.leaderu.com/offices/billcraig/docs/rediscover1.html)

William Lane Craig, 'Rediscovering the Historical Jesus: The Evidence for Jesus @

[www.leaderu.com/offices/billcraig/docs/rediscover2.html](http://www.leaderu.com/offices/billcraig/docs/rediscover2.html)

William Lane Craig, 'Contemporary Scholarship and the Historical Evidence for the Resurrection of Jesus' @ [www.leaderu.com/truth/1truth22.html](http://www.leaderu.com/truth/1truth22.html)

William Lane Craig, 'The Problem of Miracles: A Historical and Philosophical Perspective' @ [www.leaderu.com/offices/billcraig/docs/miracles.html](http://www.leaderu.com/offices/billcraig/docs/miracles.html)

William Lane Craig & Bart Ehrman, 'Is There Historical Evidence for the Resurrection of Jesus?' @ [www.holycross.edu/departments/crec/website/resurrdebate.htm](http://www.holycross.edu/departments/crec/website/resurrdebate.htm)

R.T. France, 'The Gospels as Historical Sources for Jesus' @

[www.leaderu.com/truth/1truth21.html](http://www.leaderu.com/truth/1truth21.html)

Norman L. Geisler, 'The Dating of the New Testament' @

[www.bethinking.org/resource.php?ID=233&TopicID=1&CategoryID=2](http://www.bethinking.org/resource.php?ID=233&TopicID=1&CategoryID=2)

Gary R. Habermas, 'Recent Perspectives on the Reliability of the Gospels' @

[www.equip.org/free/JAR011.pdf](http://www.equip.org/free/JAR011.pdf)

Gary R. Habermas, 'The Facts Concerning the Resurrection' @

[www.ankerberg.com/Articles/\\_PDFArchives/editors-choice/EC3W0302.pdf](http://www.ankerberg.com/Articles/_PDFArchives/editors-choice/EC3W0302.pdf)

Gary R. Habermas, 'Jesus' Resurrection and Contemporary Criticism: An Apologetic (Part I)' @

[http://faculty.gordon.edu/hu/bi/Ted\\_Hildebrandt/NTeSources/NTArticles/CTR-NT/Habermas-Resurrection1-CTR.pdf](http://faculty.gordon.edu/hu/bi/Ted_Hildebrandt/NTeSources/NTArticles/CTR-NT/Habermas-Resurrection1-CTR.pdf)

Gary R. Habermas, 'Jesus' Resurrection and Contemporary Criticism: An Apologetic (Part II)' @

[http://faculty.gordon.edu/hu/bi/Ted\\_Hildebrandt/NTeSources/NTArticles/CTR-NT/Habermas-Resurrection2-CTR.pdf](http://faculty.gordon.edu/hu/bi/Ted_Hildebrandt/NTeSources/NTArticles/CTR-NT/Habermas-Resurrection2-CTR.pdf)

Gary R. Habermas, 'Explaining Away Jesus' Resurrection: Hallucination – The Recent Revival of Theories' @ [www.equip.org/free/DJ923.htm](http://www.equip.org/free/DJ923.htm)

Gary R. Habermas, 'Resurrection research from 1975 to the present' @

[www.garyhabermas.com/articles/J\\_Study\\_Historical\\_Jesus\\_3-2\\_2005/J\\_Study\\_Historical\\_Jesus\\_3-2\\_2005.htm](http://www.garyhabermas.com/articles/J_Study_Historical_Jesus_3-2_2005/J_Study_Historical_Jesus_3-2_2005.htm)

Greg Koukl, 'No Lost Books of the Bible' @ [www.bethinking.org/resource.php?ID=22&TopicID=1&CategoryID=2](http://www.bethinking.org/resource.php?ID=22&TopicID=1&CategoryID=2)

Peter Kreeft, 'The Divinity of Christ' @

<http://catholiceducation.org/articles/religion/re0020.html>

Alister McGrath, 'The Resurrection' @ [www.bethinking.org/resource.php?ID=205&TopicID=5&CategoryID=5](http://www.bethinking.org/resource.php?ID=205&TopicID=5&CategoryID=5)

J.P. Moreland, 'Philosophical Apologetics, the Church, and Contemporary Culture' @

[www.apologetics.com/default.jsp?bodycontent=/articles/faith\\_and\\_reason/moreland-philapologetics.html](http://www.apologetics.com/default.jsp?bodycontent=/articles/faith_and_reason/moreland-philapologetics.html)

J.P. Moreland, 'The Historicity of the New Testament' @ [www.bethinking.org/resource.php?ID=207&TopicID=1&CategoryID=2](http://www.bethinking.org/resource.php?ID=207&TopicID=1&CategoryID=2)

Tom Price, 'Religion Causes Wars' @ [www.bethinking.org/resource.php?ID=227&TopicID=4&CategoryID=6](http://www.bethinking.org/resource.php?ID=227&TopicID=4&CategoryID=6)

Ben Witherington III, 'The Top 10 New Testament Archaeological Finds of the Last 150 years' @ [www.christianitytoday.com/ct/2003/138/21.0.html](http://www.christianitytoday.com/ct/2003/138/21.0.html)

## **Books**

William P. Alston, *Perceiving God: The Epistemology of Religious Experience*, (Cornell University Press, 1991)

Richard Bauckham, *Jesus and the Eyewitnesses: The Gospels as Eyewitness Testimony*, (Eerdmans, 2006)

Francis J. Beckwith, William Lane Craig & J.P. Moreland (ed.'s), *To Everyone An Answer: A Case for the Christian Worldview*, (IVP, 2004)

Craig A. Blomberg, *The Historical Reliability of the Gospels*, (IVP, 1987)

Craig A. Blomberg, *The Historical Reliability of John's Gospel*, (Apollos, 2001)

Paul Copan (ed.), *Will The Real Jesus Please Stand Up? A Debate between William Lane Craig and John Dominic Crossan*, (Baker, 1998)

Paul Copan & Paul K. Moser (ed.'s), *The Rationality of Theism*, (Routledge, 2003)

Paul Copan & Ronald K. Tacelli (ed.'s), *Jesus' Resurrection: Fact or Figment? A debate between William Lane Craig & Gerd Ludemann*, (IVP, 2000)

William Lane Craig, *The Son Rises*, (Wypf & Stock, 2000)

William Lane Craig & Walter Sinnott-Armstrong, *God? A Debate between a Christian and an Atheist*, (Oxford, 2004)

William Lane Craig & J.P. Moreland, *Philosophical Foundations For A Christian Worldview*, (IVP, 2003)

William Lane Craig & J.P. Moreland (ed.'s), *Naturalism: A critical analysis*, (Routledge, 2001)

Stephen T. Davies, *Risen Indeed: Making Sense of the Resurrection*, (SPCK, 1993)

R. Douglas Geivett & Gary R. Habermas, *In Defence of Miracles: A Comprehensive Case for God's Action in History*, (Apollos, 1997)

Gary R. Habermas: *Ancient Evidence for the Life of Jesus: Historical Records of His Death and Resurrection*, (Thomas Nelson, 1984)

Gary R. Habermas and Anthony Flew, *Did Jesus Rise from the Dead? The Resurrection Debate*, (ed.) Terry Miethe, (Harper & Rowe, 1987)

Colin J. Humphreys, *The Miracles of Exodus: A Scientist's Discovery of the Extraordinary Natural Causes of the Biblical Stories*, (Continuum, 2003)

C.S. Lewis, *Miracles*, second edition, (Fount, 1998)

J.P. Moreland, *Scaling the Secular City*, (Baker, 1987)

J.P. Moreland, *Love Your God With All Your Mind: The role of reason in the life of the soul*, (Navpress, 1997)

Amy Orr-Ewing, *Why Trust The Bible? Answers to 10 tough questions*, (IVP, 2005)

Alvin Plantinga, *Warranted Christian Belief*, (Oxford, 2003)

Randall Price, *The Stones Cry Out: What Archaeology Reveals About the Truth of the Bible*, (Harvest House, 1997)

James F. Sennett & Douglas Groothuis, *In Defence of Natural Theology: A Post-Humean Assessment*, (IVP, 2005)

Jeffery L. Sheler, *Is The Bible True?*, (Harper Collins, 2000)

Richard Swinburne, *The Resurrection of God Incarnate*, (Clarendon Press, 2003)

Peter Walker, *The Weekend that Changed the World: The Mystery of Jerusalem's Empty Tomb*, (Marshall Pickering, 1999)

John Wenham, *Easter Enigma: Are the resurrection accounts in conflict?*, second edition, (Paternoster, 1992)

Michael J. Wilkins and J.P. Moreland (ed.'s), *Jesus Under Fire – Modern Scholarship Reinvents the Historical Jesus*, (Paternoster Press, 1996)

Peter S. Williams, *I Wish I Could Believe in Meaning: A Response to Nihilism*, (Damaris, 2005)